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Counting the Countless

Rape Victimization During the Rwandan Genocide

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Rape is regularly committed during a period of collective violence such as war. The article discusses the Rwandan genocide during which rape was used with the deliberate intent to destroy in whole or in part the Tutsi community. Rape is not often studied in such particular contexts, so little is known about its prevalence in genocide; as a consequence, the comprehensive impact of genocidal incidents remains underaddressed. We estimate the prevalence of rape victimization (i.e., the number of women raped) during the Rwandan genocide in 1994. In doing so, we apply a methodology in which we use conservative victimization estimates, disaggregating between victims who were killed and victims who survived. We arrive at an estimated lower bound of a little more than 350,000 female rape victims, most of whom were Tutsi. We discuss the importance of arriving at reliable estimates, the methodology, and implications for future research.

Keywords: *genocide; Rwanda; victimization; rape*

Though it is universally acknowledged that rape and other forms of sexual violence may occur on a large scale during war (Wood, 2006), rape is relatively understudied as part of periods of collective violence in which international crimes are committed. Most studies that have been carried out are qualitative studies on the nature of rape, the victims, and the motives perpetrators may have had (Wood, 2006). Several reports of recent violent mass conflicts have shown that rape may be extremely widespread (see for Congo, Human Rights Watch (HRW), 2005; see for Sierra Leone, Physicians for Human Rights, 2002; see also the International Criminal Court press release on May 22, 2007, regarding the Central African Republic, <http://www.icc-cpi.int/press/pressreleases/248.html>). The most influential theory of mass wartime rape explains it as a coherent, coordinated, and effective means of warfare (Gottschall, 2004). It spreads terror, diminishes civilian resistance, emasculates enemy civilian and combatant males, and shatters not only the women but also the societies on which it is afflicted.

Studies on rape victimization are generally difficult to carry out (Lisak & Miller, 2002) and carrying out research in, or on, rape in a country in conflict is incrementally more difficult (Bijleveld, 2008). The extent to which rape is widespread in a period of collective violence, or its quantitative impact, remains, therefore, unclear.

As Wood argued, studying variation in rape during war to explain its backgrounds and causes is hampered because not enough is known about the empirical patterns of rape. Variations may first simply be due to variations in monitoring: When authorities make a concerted effort to register cases, the statistics may show an increase without there actually being an increase. Second, methodological challenges, also in peacetime, are enormous (see for instance Lisak & Miller, 2002), and in wartime, such problems are magnified. However, if no adequate data are available it is difficult to assess the gravity of the crime (Wood, 2006). For example, a number of relevant research issues are estimating whether wartime levels of rape are higher than peacetimes rates, investigating patterns of sexual violence, or to what extent rape and other forms of sexual violence can be termed *widespread* or *systematic* or can be regarded as a deliberate and systematic plan to kill and destroy a group in whole or in part (*Rome Statute of the International Criminal Court, 1998, art. 6-8*).

There is some debate among scholars studying international crimes, whether there is any relevance in studying what is referred to as “The Number”: the number of people killed, the number of people maimed, the number of people raped (Center for Research on the Epidemiology of Disasters conference, 2008). Some argue that the exact number of crimes committed is trivial: Whether 2 million or 2.1 million died makes no difference in our evaluation of the scale of the atrocities (Collins, 2006, personal communication). Some fear that the number will overshadow in the debate at the cost of trying to understand causes and nature of the conflict. Third, it is stated—rightly so—that data on conflict situations are often of low precision, so that it will be hard to obtain exact estimates anyway (see Gray & Marek, 2008). Lastly, it is argued, the number bears little practical legal relevance.

Notwithstanding the above mentioned criticisms, there are several reasons why knowing the number is relevant in the study of international crimes and other gross human rights violations. First, researchers and policy makers generally want to know the exact numbers when it comes to national crime rates or crime epidemics. There is no reason why researchers would not want to know when it comes to international crimes. Second, though a figure may just be a statistic to outsiders (see the famous Stalin and Eichmann quotes),¹ for victims and relatives these figures are not just figures: They present the horrible truth. Victims want to know and need to know (Cohen, 1995), as the existence of numerous truth commissions testifies as well. Each victim is a human being who died or was violated and traumatized. By acknowledging their deaths, by making exact tallies, or as precise estimates as possible, by describing the facts and circumstances of their fates, they are at least to some extent retransformed into human beings who matter.

Next, for postconflict society it is important to know how many people were victimized, to gauge the damage as well as to figure out what needs to be done to support these people. This is especially relevant in the case of rape victims who are traumatized and may require treatment. In addition to the personal impact of rape, there are broader issues involving serious health problems both physically and psychologically (also see the Introduction to this issue). Therefore, to prepare society, it is important to know how many people were raped, where most people were raped, how they were raped, and what the consequences of the rape are. Do the victims suffer from sexually transmitted diseases? Are the victims still able to bear children? Did they become pregnant and, if so, can they manage to accept their fate and provide the necessary care for the child or do they reject the child? Knowing the number is a first step in this process.

Fourth, after a period of mass violence, a society needs to recover and rebuild; one of the best methods is truth telling and exposing the full truth. Many countries have, therefore, chosen to rely on truth commissions to expose the truth (Hayner, 2001). By disclosing the truth, societies proceed from knowledge to acknowledgment of the victims and the injustice done to them. The aim is to deconstruct the social reality in which the crimes were committed. To do so, one needs to know as reliably and accurately as possible the nature and extent of the crime. For that matter, it is illustrative that statisticians and epidemiologists have been incorporated in truth-telling teams in the last 10 years (Asher, Banks, & Scheuren, 2008).

From a legal perspective, it is important to know the figures and patterns of the crime in question as they can tell us whether an attack was widespread, and/or whether it was systematic (a requirement for the qualification of a crime against humanity), and/or are necessary to assess whether the crimes were indeed part of a plan rather than arbitrary (requirement for genocide—also see the Introduction in this issue).

In addition to the broader societal need to know the truth, there is another reason: Within the fast developing field of interdisciplinary research on international crimes such as war crimes, crimes against humanity, and genocide, there is a dire need to provide the best possible estimates as a part of meaningful research.

To engage in meaningful research on collective violence, we need to understand the interrelatedness between the macro patterns of violence (i.e., why states go to war and why a civil war has started) and the microdynamics of violence (i.e., why individuals use violence; Kalyvas, 2006). Only when one has reliable and valid data can we begin to discover, understand, and explain the patterns of violence and then begin to engage in meaningful responses. For instance, in his research Kalyvas concluded that there is an interrelatedness of motives that is not always logical or obvious from the start. Perpetrators may also take advantage of a war for reasons such as getting even with a neighbor. Therefore, to understand these dynamics, we need to explain why in one village 75% of the women were raped, whereas in another village only 3% of the women were raped. What accounts for these differences? What accounts for the social context and social dynamics? Smeulers (2008) argued that perpetrators are indeed not a homogeneous group: Some perpetrators may commit rape out of fanatic motives, whereas others may do so out of opportunistic motives. However, before we can start to offer such explanations, we need to know the figures. By studying the interrelatedness between the broad political, ideological, and social context, the extent and patterns of violence, and the perpetrators, we might be able to establish various perpetrator motives and understand what brought some of them to commit their crimes.

As Silva and Ball (2008) argued, the challenge for statisticians and social scientists is to ensure that debates about the number are based on high-quality data, scientific rigor, and, we add, transparency. Only when it is clear exactly how numbers are arrived at, what assumptions are made, can estimates be refuted or accepted. It has happened often, and examples are given below, that the first number that made it to the stage survives even when unsubstantiated. In addition, researchers have, for instance for Darfur, presented greatly differing mortality estimates (Government Accountability Office [GAO], 2006), which in a sense may have played into the hands of the perpetrators. Thus, rigor and transparency are also necessary to help ensure that those responsible will be held accountable.

However, studying international crimes and other gross human rights violations—qualitatively or quantitatively—is no easy task. Information is purposely hidden by the perpetrators, the infrastructure may be below standard, there are serious security risks, vital data collection systems may be destroyed or may in many cases never have been fully operational or reliable before the conflict started, and access to the population may be limited if not impossible (see the Introduction for a list of the tactics of denial used by offending states). It is, therefore, necessary to develop a methodology that deals with such challenges. It is also necessary to be able to test the reliability limits of our estimates. In practice, this may often mean that—as confidence intervals become too wide—we have to agree to employ only the lower bound of these intervals.

In this article, we will focus on the Rwandan genocide in 1994. Though there are fairly universally employed (though not uncontested) estimates of mortality for the genocide (see Table 1 in the Introduction to this issue), for rape the picture is much less clear. Given the large upheavals during the Rwandan genocide, the lack of reliable data, the large social stigma attached to rape, and the fact that many victims suffered an even worse fate, rape has remained a relatively understudied type of offence. Though the large-scale murders that occurred during the genocide uncontestedly destroyed Rwandan society, rape contributed to the destruction in its own way. Rape served to break the resistance, to humiliate victims, as the spoils of war, as revenge, and ultimately to destroy also those who survived rape itself and break up their societies by bestowing them with these victims and their mostly unwanted offspring, and often also with HIV infections. As such, reliable estimates of rape prevalence are necessary to evaluate comprehensively the quantitative impact of the genocide.

The aim of this article is, therefore, to contribute to the understanding of the quantitative impact of rape as a weapon of genocide by estimating the extent of rape victimization in Rwanda in 1994, providing a transparent and best possible estimate for the prevalence of rape victimization in Rwanda, to

1. serve as a basis for further research on the epidemiology and causes of rape in Rwanda
2. test and aid in the further development of methodologies for studying international crimes and other gross human rights violation.

We will gauge the estimated prevalence of rape victimization against rape victimization in Rwanda before the genocide. Next, we will gauge it against present-day levels of rape victimization in a relatively similar part of the world where rape victimization is generally assumed to be very high, namely, South Africa.

We start with a brief description of the Rwandan genocide. Much has been written on the genocide, and we refer to the relevant literature for more information as well as the article by Brannigan and Jones in this volume.

Rwanda Background

When European colonizers reached Rwanda, the country was inhabited by three groups, namely, the Hutu, Tutsi, and Twa. The vast majority of the population consisted of the Hutu with Bantu physical characteristics. The Twa pygmoids comprised only 1% of the population. The Tutsi formed the remaining part of the population. Their tall and thin appearance

and characteristic facial features distinguished them clearly from the other two groups (HRW, 1999; Prunier, 1995). However, the groups were not clearly distinguishable tribes. They had developed a common culture and common customs. The functional differentiation between Hutu, Tutsi, and Twa, in large part, was a creation of European colonialism. The colonizers produced a theory of ethnic superiority, with the Twa at the bottom, Tutsi at the top, and Hutu in between (Mamdani, 2001). As a consequence, Tutsis were awarded more powerful political positions and gained better privileges. Unfortunately, this ethnic division took root and has led to power struggles and violent conflict since 1959, 3 years before Rwandan independence, when the Hutu majority overthrew the ruling Tutsi king. Although the violent episodes are uncontested, the degree of ethnic tension and violence in precolonial times is widely disputed in many sources. Over the next few years, thousands of Tutsi's were killed and some 150,000 fled to neighboring countries (Prunier, 1995). Despite these political struggles, Hutus and Tutsis often intermarried and lived side by side in Rwandan society (HRW, 1999).

The children of the 1959 refugees later formed a rebel group, the Rwandan Patriotic Front (RPF), which started a civil war in 1990. Hutu extremists feared loss of power due to consistent threats of invasion by the RPF combined with several actual RPF massacres of Hutu civilians (HRW, 1999). Rather than directing this fear at the RPF itself, it was generalized to the Tutsi people as a group. Continually stressing the "Tutsi threat," the genocide was a result of the Hutu elite in Rwanda deliberately fostering hatred and fear of the Tutsi population (for an overview see Prunier, 1995). To make mass violence possible the Hutu community had to be mobilized. Therefore, the genocide, 4 years later, was preceded by an intensive propaganda campaign fueled by Hutu extremists (HRW, 1999). This campaign was well prepared, and it already started at the beginning of the civil war in 1990. Much of this propaganda was gendered, focusing specifically on degrading Tutsi women. One of the most widely distributed and immensely popular Hutu propaganda tracts was the "Hutu Ten Commandments." In the first three commandments Tutsi women are portrayed as temptresses who are to be avoided. This kind of doctrine was broadcasted via Radio Milles Collines and read aloud by Hutu extremist leaders in public meetings (Hamilton, 2000).

All of this culminated in April 1994. The death of (Hutu) president Habyarimana on April 6, 1994, ignited the atrocities. Bands of so-called Interahamwe, Hutu militias backed by the government, roamed the towns and the countryside, killing, raping, and looting mainly Tutsis. Hundreds of thousands were killed in about 100 days (Dallaire, 2003, and for estimates of the numbers see p. 374; also see Prunier, 1995). Despite media coverage reflecting the true scale of violence and intelligence provided before the beginning of the killings all first-world countries declined to take action to stop the massacre (see Dallaire's detailed inside account, Dallaire, 2003; also Barnett, 2002; HRW, 1999; Power, 2001). The slaughter of Tutsis ended on July 4, 1994, when the RPF seized power. Approximately 2 million Hutu's fled to the Democratic Republic of Congo, Tanzania, Burundi, and Uganda, fearing Tutsi retribution, and an estimated 3 million were displaced internally (Prunier, 1995). That the events that took place during this period can be labeled as *genocide* is uncontested, although the concept of judicial notice of the genocide has not been permitted in cases at the International Criminal Tribunal for Rwanda (ICTR; HRW, 1999; ICTR jurisprudence, see for example *Prosecutor v. Akayesu*, 1998).

During the genocide, rape was extremely widespread. Victims were mainly Tutsi women, but also moderate Hutu women who were married to a Tutsi husband or who were friends with Tutsi. Even underage and elderly women were not spared. As the United Nations (UN) Special Rapporteur on Rwanda, Degni-Ségui (p. 7), pointed out: "Rape was the rule, its absence the exception," during the genocide. Loved ones of victims were often made to watch or participate. Gang rape was common, as well as forced incest. Lots of women were brutally mutilated. Even rape of corpses took place (for further descriptions see Degni-Ségui, 1996; HRW/Africa, 1996).

Rape can be qualified as genocide if it is committed with the intention to destroy a particular group (*Convention on the Prevention and Suppression of the Crime of Genocide, 1948*). Even so, it can be questioned to what extent rape and sexual violence in Rwanda during the genocide should be seen as a side offence of the genocide or to what extent it was an explicit tool aiding in the ". . . process of destruction of the Tutsi group—destruction of the spirit, of the will to live, and of life itself" (*Prosecutor v. Akayesu, 1998, para. 732*).

In Rwandan society, as well as many other African nations, rape carries a severe social stigma. It is often said that women who were not killed were in fact left to die of sadness (HRW/Africa, 1996). Many Rwandan women were infected with HIV/AIDS or other sexually transmittable diseases that made them unwanted in Rwandan society. Rape, therefore, functioned as a means to destroy interpersonal relationships in the community and shatter a woman's sense of identity and security (African Rights, 2004).

Such strategic use of rape and sexual violence, however, does not account for all incidence, as many women were killed after being raped (Degni-Ségui, 1996). In these cases, rape was of no strategic use apart from dehumanizing the victims and thus making it easier for the perpetrators to kill them afterwards. Some perpetrators were motivated by frustration and hate of Tutsi women. But other opportunistic individuals took advantage of the chaos of genocide and civil war for personal sexual gratification and thus contributed to the extensive prevalence of rape. This is illustrated by the prominence of sexual slavery and forced marriages. In that sense, women and rape functioned as war booty or loot (see for overviews Bonnet, 1995; HRW/Africa, 1996). Although rape was extremely widespread, it was seldom prosecuted for.

On September 2, 1998, the ICTR convicted Jean Paul Akayesu, mayor of the commune of Taba during the genocide, for rape and inhumane treatment in addition to other charges. This was a landmark decision because for the first time ever rape was being prosecuted as a crime against humanity and as a war crime for an international tribunal. Akayesu was considered a local authority who failed to oppose killings and rape and thus gave his tacit encouragement. He sometimes even ordered to cause bodily or mental harm. In relation to rape and other forms of sexual violence the tribunal concluded:

The acts of rape and sexual violence described above, were committed solely against Tutsi women, many of whom were subjected to the worst public humiliation, mutilated, and raped several times, often in public, in the Bureau communal premises or in other public places, and often by more than one assailant. These rapes resulted in physical and psychological destruction of Tutsi women, their families and their communities. Sexual violence was an integral part of the process of destruction, specifically targeting Tutsi women and specifically contributing to their destruction and to the destruction of the Tutsi group as a whole. (*Prosecutor v. Jean-Paul Akayesu, 1998*)

Before presenting our finding on the extent of rape victimization, we will now first describe our methods.

Method

Variables

In assessing the quantitative impact of rape during the 1994 Rwandan genocide, we distinguish two relevant measures. The first of these is the estimate of the number of women who were raped during the 1994 genocide in Rwanda. This we will call the prevalence of rape victimization. The second of these is the estimate of the number of rapes that took place during the 1994 genocide in Rwanda. This we call rape incidence. The two are not the same. It is well known that many women were raped more than once (Degni-Ségui, 1996; HRW/Africa, 1996). As we will show in the following paragraphs, it is highly dubious whether a reasonable estimate can be made of this latter measure, that is, the total number of rapes. Therefore, we will focus on the prevalence of rape victimization. Even though it is known that men were raped as well, we will focus on rape of female victims. The reason for this is that the information on rape of men is even more scarce than that for women.

We define the prevalence of rape victimization for this article as the number of Rwandan women who were raped during the 100 days of the genocide in 1994. Obviously, women have been raped later in 1994, or later than 1994, while still in the refugee camps, but these we consider as outside of our scope.

Estimation

Our method of estimation is made up of several steps. First, we disaggregate our estimates into surviving victims of rape and victims of rape who did not survive. We derive two estimates for the surviving rape victims. The first takes the number of rape-incurred pregnancies as found in the literature and applies back-calculation methods to arrive at a likely number of rapes. The second estimate draws verbal statements from published documents on the genocide (referenced as shown in the following) and quantifies these to arrive at an estimate. The two estimates (i.e., based on number of pregnancies and based on quantified statements from the literature) are next combined into one estimate for rape survivors. Next, we estimate the number of women who were raped during the genocide but who did not survive; this estimate is also derived from verbal statements from published documents on the genocide (again referenced as follows). The estimates for rape survivors and rape nonsurvivors are then added into one overall estimate. Our methods are not based on sophisticated statistical techniques; rather, they consist of triangulation of information and estimates from different sources. At each step, we always choose the lowest of possible estimates, or the lower bound of a range, to arrive at a conservative estimate.

Next, the estimate thus obtained will be compared with the UN crime trends survey data on rape victimization prevalence before the genocide (UN, 2006), to investigate how much higher levels were compared to levels before the genocide. Lastly, we will compare the Rwandan 1994 estimates with rape victimization prevalence estimates from South Africa

(Jewkes & Abrahams, 2002; Jewkes, Penn-Kekana, Levin, Ratsaka, & Schrieber, 1999) to investigate to what extent genocidal rape levels were higher than levels in countries with high peacetime rape levels.

Results

As far as we know, only one victim survey has attempted to estimate rape victimization in Rwanda in 1994: This survey was coordinated by the Rwandan Ministry for the Family and the Promotion of Women, and published in 1995 (Republic of Rwanda: Ministry for the Family and the Promotion of Women, 1995, referenced in HRW/Africa, 1996). The survey reported that at least 15,700 (mainly Tutsi) women were raped by the Interahamwe and other men participating in the genocide or taking advantage of the situation to loot and rape. From the references to the report (for instance in HRW/Africa, 1996), it is unclear how this number was derived. One must presume that this number was extrapolated from the number of births in Rwanda out of genocide-related rape, which is estimated to be between 2,000 to 5,000 (World Health Organization [WHO], 2000), divided by the likelihood of pregnancy from rape. In the Ministry for the Family and the Promotion of Women report, a total of 304 rape survivors were interviewed. Of these women, 35% reported having become pregnant as a result of (the) rape. The number of rapes can then be back calculated as $5,000/.35 = 14,286$. Though not exactly 15,700, the estimate approaches it.

However, it is a known fact that many women are extremely reluctant to disclose that they have been raped. Various reasons for this are advanced in the literature (see HRW/Africa, 1996, for an overview). The first reason for women to be so extremely reluctant to speak about their rape victimization is fear of rejection. Rape carries an immense social stigma in Rwandan society, and women are reported to be not willing to declare that they have been raped for fear of not being able to ever find a husband. There are also reports of women who were rejected by their families because they had been raped. Second, many women were raped during the genocide by men they know, or by men who may even still be living in their vicinity. They are apprehensive of speaking out about the rape as they fear reprisals. Third, many survivors are reported to be unwilling to speak about their experiences as they suffer from survivor's guilt. Lastly, many victims or witnesses are afraid to speak out because they fear being called to testify. Also, some women report that speaking out about their victimization is not worth the trouble and the risk. They feel let down by the legal system, particularly the ICTR (see for these issues, Hamilton, 2000; HRW/Africa, 1996; Republic of Rwanda: Ministry for Local Government, 2002).

The reported 5,000 babies born out of genocide-related rape constitute probably a serious underestimate. Given that Rwandan women were reportedly (HRW, 1996) extremely reluctant to disclose that they had been raped, they may also have been extremely reluctant to identify their pregnancy as one from rape. As the 5,000 are likely an underestimate of the true number, so too is the rape prevalence number of 15,700. Much more important, however, we know that many women were killed after they were raped. As Degni-Ségui (1996) noted, a much higher number of raped women were killed after being raped and so never delivered a child.

For that matter, we will employ the following procedure here. First, we estimate rape victimization in surviving victims. Next, we estimate rape victimization in victims who were killed. We summarize our steps and results in Table 1 below.

Table 1
Estimates of Survivors and Nonsurvivors of Rape

Part I: Survivors of rape

Method: Back calculation from rape-induced pregnancies

Step 1: 5,000 babies divided by 60% abortions → 12,500 pregnancies

Step 2: Downscaled by one third → 8,333 pregnancies

Step 3a: Divided by US estimated 5% pregnancy risk per rape → 166,660 survivors

Step 3b: Divided by Rwanda 17.6%-66% estimated risk → 12,625-52,081 survivors

Method 2: Quantifying statement

“Almost every surviving Tutsi woman and adolescent girl was raped”

Step 1: Downscaled estimate 100,000 female Tutsi survivors

Step 2: 60% aged more than 12 years

Step 3: Estimate 60% raped → 60,000 survivors

Estimated number of surviving victims 12,625–166,660

Conservative midpoint → 60,000 surviving rape victims

Part II: Nonsurvivors of rape

Method: Quantifying statement

“Rape was the rule and not being raped the exception”

Step 1: 346,400 Tutsi women killed + 21,650 Hutu women

Step 2: “Rape was the rule” 95% raped

Step 3: In Kibuye 50% victims killed in massacres in which 33% raped → 64% female victims raped in Kibuye

Step 4: Averaging with all other areas → 80% killed female victims raped

Step 5: 346,400 + 21,650 X 0.8 → 294,440 killed rape victims

Total number of rape victims: 354,440

Estimates for Survivors

Back calculation from pregnancies. In estimating rape victimization in surviving victims, listed under Part I in Table 1, we start (Method 1) from the 2,000 to 5,000 births from rape reported in the literature (WHO, 2000). We need to reckon, however, with the fact that the 5,000 births do not correspond to 5,000 pregnancies. In all likelihood, quite a number of pregnancies were not carried to term as women chose to get an abortion (HRW, 1996) or had a miscarriage. There have been reports of infanticide as well (Degni-Ségui, 1996). No statistics are available, and again the available literature uses terms like *widely reported* as well as *some*, so that these are hard to quantify meaningfully. The same study conducted by the Rwandan Ministry of Family and Women’s Promotion, which we referred to in the paragraph above, reports that of 472 pregnancies due to rape, 282 or 60% ended in abortion. Extrapolated, this would imply that the 5,000 live births correspond to 12,500 pregnancies incurred during the genocide (this ends Step 1). However, this percentage of rape-incurred pregnancies ending in abortion was not obtained from a representative survey. As it was conducted in two towns where women may have had greater access to medical facilities, the number should be scaled down. For lack of better guidelines, we take two thirds of the abortion rate from this study, thereby arriving at a conservative estimate (Step 2). The number of rape-related pregnancies in surviving women is thus estimated at 8,333.

Working on from these 8,333, we back calculate the number of rapes that took place to generate these 8,333 pregnancies—dividing the number of pregnancies by the pregnancy risk gives the number of rapes. Degni-Ségui (1996), in his oft-quoted study, gives a figure

of 1 pregnancy for every 100 rapes; this figure is unsubstantiated and unsupported by any literature we could find, so we chose not to use it. A nationwide representative study of the incidence of pregnancy after rape was carried out in the United States. Holmes, Resnick, Kilpatrick, and Best (1996) estimated that the likelihood of pregnancy is 5% per single rape. This is obviously not equal to the risk of pregnancy per raped woman, but the closest we can find. Using this 5% risk (Step 3a), we arrive at an estimate of 166,660 raped survivors. However, many women were raped more than once, or gang raped; some women (particularly those who survived) were held captive for a longer time and raped on multiple occasions (HRW, 1996). This may have increased the likelihood of pregnancy, in which case the prevalence would be lower. On the other hand, in Rwanda, where women bear more children than in the United States, the likelihood of pregnancy is likely to have been smaller as more women were perhaps pregnant or breastfeeding. Other differences probably affect the likelihood of pregnancy. This means that we need more tailored estimates of pregnancy risk.

The Steering Committee of the Joint Evaluation of Emergency Assistance to Rwanda (1996) reports on an (unrepresentative) survey of the incidence of rape-induced pregnancy in three provinces (i.e., Kigali, Byumba, and Butare). Of the 146 women interviewed who had survived single, multiple, or protracted rape, 71 (or 49%) were pregnant as a consequence. A study conducted by the Ministry of Family and Women's Promotion (1995), cited in Hamilton (2000), who again quotes Angelucci et al. (1997), reports that of 716 cases of rape suffered in the context of the genocide, 472 resulted in pregnancy, a 66% rate. African Rights (2004) reported how in their survey of 199 raped women, 31 became pregnant as a result of the rape, a 15.6% rate. These studies, which generate pregnancy risks between .66 and .16, respectively, of course take into account multiple rape, as a number of the women surveyed in these studies were raped more than once. Applying the various empirically derived estimates of pregnancy risk for rape to the number of rape-related pregnancies in surviving women (Step 3b), we, therefore, arrive at estimates for rape victimization prevalence in surviving women that vary between $8,333/.66$ and $8,333/.16$, that is, between 12,625 and 52,081.

Quantification of findings in the literature. Leaving aside back-calculation methods, we now (see Table 1, Method 2) estimate rape victimization prevalence by quantifying statements in the literature on the Rwandan genocide. For instance Bonnet (1995), quoted in HRW/Africa (1996, p. 14), stated that some observers believe that "almost every . . . [Tutsi, CB, AM, AL] woman and adolescent girl who survived the genocide was raped." If we would know how many Tutsi women survived the genocide, this could also be used to arrive at an estimate of the number of raped survivors. However, the proportion of Tutsi in the population was uncertain because it was not accurately registered. Government figures are misleading, as the government systematically tried to underestimate the number of Tutsi, and also Tutsi often tried to pass themselves off as Hutu to avoid discrimination (HRW, 1999). The 8.4% percentage of Tutsis that is often used may in fact have been 10% or even 12% (Verwimp, personal communication, 2006). According to Prunier (1995), approximately 130,000 Tutsi survived the genocide, more women than men, and approximately 800,000 Tutsi were killed. The Ministry for Local Government (2002) report concluded that the genocide in Rwanda left 1,074,017 people dead of whom full

details could be collected only for 934,218, but the period under study was, however, longer than the actual time the genocide took place. We take the lower bound, and continue working with the 130,000 survivors that Prunier reported.

Next, we need data on sex-specific survival chances to be able to estimate the number of surviving Tutsi women. According to Verwimp (2001) who conducted a nonrepresentative survey of inhabitants in Kibuye province and investigated those who could be retrieved as compared to a pregenocide survey of inhabitants, 78% of Tutsi were killed, meaning that 22% survived. As his regression analyses show, and as was also shown later (Verwimp, 2006) in an analysis of the Ibuka database (Ibuka is an umbrella organization for survivor organizations in Rwanda; “Ibuka” means “remember”), women had larger survival chances than men. Overall, the percentage of male victims was 56.4, the percentage of female victims 43.3%. We should bear in mind, however, that the Kibuye results are in all likelihood not representative of all Rwanda, as a particularly high proportion of Tutsi were killed there, of whom about half in large-scale massacres.

If we next assume that the proportion of females in the population in Rwanda is 51.3% (Government of Rwanda, 1995, quoted in HRW/Africa, 1996), and start from a Tutsi population of 930,000 before the start of the genocide, we estimate that of these, 477,090 are female. Thus, of the 800,000 Tutsi who were killed 43.3% or 346,400 would be assumed female; that leaves 130,690 (477,090–346,400) surviving Tutsi females. Obviously, this number is inaccurate. When there are 130,000 surviving Tutsis, there cannot be 130,690 surviving Tutsi females. There must be some sort of mismatch in this calculation. As there is no easy way to resolve this mismatch, we mitigate any distortions by continuing with a lower estimate, scaling down the number and continuing with a coarsely corrected 100,000 surviving Tutsi females (Step 1). According to figures of the UN Population Division (2007) and the UN Department of Economic and Social Affairs (2007), it can be inferred that approximately 60% of the female population was aged 12 years or older (Step 2). If it were true that almost every surviving Tutsi woman and adolescent girl was raped, this would mean that—taking into account the age distribution—about 60% would have been raped (Step 3), amounting to 60,000 surviving Tutsi rape victims. It should be noted that this is an underestimation, as girls younger than 12 were also not spared. Of course, quite a number of Hutu women were raped as well.

So far, we conclude that in all surviving women, between 12,625 and 166,660 have been raped at least once. This interval comprises the previous estimates of 17,006, 23,809, 52,081, and 60,000. Obviously, the estimated interval is too wide to be meaningful. Much of this is caused by the lack of a precise estimate for pregnancy risk. The 60,000 estimate based on the number of surviving Tutsi women, being a conservative midpoint for the range, may, although coarse, very well offer the most realistic assessment of rape victimization prevalence.

Estimates for Nonsurvivors

Next, we will attempt to estimate rape victimization in victims who were killed; this is summarized in Part II in Table 1. As we estimated above, during the genocide, 346,400 Tutsi women were killed (Step 1). As many sources attest, rape was the rule and not being raped the exception (Degni-Ségui, 1996). Old women as well as young girls, and even babies, were

raped. We quantify the general statement that rape was the rule and not being raped the exception by assuming that, of these 346,400 Tutsi women who were killed, 80% were raped. Literally speaking, we might perhaps better quantify the statement “rape was the rule and not being raped the exception” as 95% (Step 2). However, quite a number of Tutsi and Hutu were killed in large-scale massacres that took place over just a few days; for instance, in Kibuye (Verwimp, 2006), a little less than half of all counted 40,000 victims were killed in such massacres (defined by Verwimp as a killing of more than 100 people within 3 days). It is unlikely that in such cases there would have been time to rape (almost) all women. In Kibuye, we might, therefore, have to scale down the quantification to reflect that half of the female victims killed in the massacres were raped, or even more conservatively, a third (Step 3). This would translate to a little less than two thirds of women were raped in Kibuye: 47.5% (95% of 50%) + 16.7% (a third of the other 50%) = 64.2% . However, in Kibuye, relatively many victims fell in large-scale massacres and fewer in the rest of Rwanda, so that 64.2% would be too low for all of Rwanda. We, therefore, scale the estimate for all of Rwanda upward, conservatively again, arriving at an estimate of 80% for all of Rwanda (Step 4).

This amounts to 277,120 rape victims. However, many Hutu women who were deemed too friendly with Tutsi, or (ever) married to Tutsi men were raped and killed as well. It is estimated that about 50,000 Hutu were killed during the genocide and its immediate aftermath (Prunier, 1995). Assuming that also of these, 43.3% were women, this would mean that an additional 80% of 21,650 (43.3% of 50,000) or 17,320 of these Hutu women were raped. These Hutu women have been added to the calculations in Steps 1 to 5 in Part II.

All in all, we thus arrive at an estimate of $(277,120 + 17,320)$ 294,440 women who were raped and killed during the genocide (Step 5).

Adding up Rape Victimization in Survivors and Nonsurvivors

Summarizing the results from the two exercises, counting the surviving numbers of rape victims, and adding to these the number of killed rape victims, we arrive at a total number of 354,440 women who were raped during the genocide in Rwanda in 1994 ($294,440 + 60,000$) or somewhat less than half the number of people killed. Based on an estimated population of approximately 7.7 million (Prunier, 1995), of whom just less than 4 million were female, more than 350,000 women were raped. This translates to approximately 8,972 rapes per 100,000 women.

Thus, our calculations show that in the 100 days of the genocide, the risk for a Rwandan female to be raped at least once was about 1 in 11, or about 9%. Obviously, the risk for Tutsi women was much higher, being more than 80%.

Comparison with Pre-Genocide and South African Levels

Next, we want to assess to what extent in the genocide and its aftermath rape victimization levels were higher than before. We used data from the fourth UN survey of crime trends and operations of criminal justice systems, between 1986 and 1990, the latter being the year when the civil war started. In this survey, *rape* is defined as sexual intercourse without valid consent. The figures for rape reported to the police in Rwanda in these years are successively 1,021, 970, 1,339, 1,162, and 721 (UN, 2006). Assuming that all of these rapes have a male perpetrator and female victim this comes down to an average of 31

rapes per 100,000 women over these 5 years. Of course, these are rape incidence data that are registered in police data and this number cannot be compared to our estimation that is based on data that at best approach victim survey data.

It is commonly estimated that around 80% of all sexual offences are not reported to the police (Lisak & Miller, 2002). For rape this figure may be lower, but considering the strong social stigma on rape in Rwandan society using this percentage seems fair. Thus, one arrives at 5,213 rapes per year or 149 rapes per 100,000 women per year. As the genocide only lasted about 100 days, the rape prevalence during the genocide discussed previously must be multiplied for comparing measures among rape incidences (we take $365/100 = 3.65$). This means there were 220 ($3.65 \times 8,972 = 32,748/149$) times as many rapes during the genocide than before in Rwanda. Formulated differently, under normal circumstances, it would have taken 220 years in Rwanda to accumulate this number of rape victims.

As our estimate of 354,440 rape victims is based on estimates that best approach an estimate based on victim survey data, we next compare them to (recent) survey data for South Africa where rape is reported to be relatively more prevalent as compared to other (African) countries. Jewkes and Abrahams (2002) reported the nationally representative 12-month rape prevalence from the 1999 National Victims of Survey at 390 per 100,000 women aged 17 years and more. From a different study (Jewkes et al., 1999), that was nonrepresentative, as it was conducted in three provinces but did have much more tailored wording and a sensitive questionnaire environment conducive to reporting rape, a 12-month rape prevalence of 1,300 per 100,000 women aged 18 to 49 years was reported. As the authors note, South Africa is—when comparing police data—near to or at the global top of rape incidence. However, comparing these 12 months' prevalence data with our 12 months' prevalence data for 1994 in Rwanda, rape victimization risk in Rwanda in 1994 was still 25 ($32,748/1,300$) to 84 ($32,748/390$) times higher than this global top.

Conclusion

Our first conclusion is that there is a dearth of information on rape victimization during the Rwandan genocide. In the chaos of the genocide and its aftermath attention was directed more at the number of deaths than at (surviving) victims of rape. Registration of the number of rape victims probably had no priority.

The report by Degni-Ségui (1996) submitted to the Economic and Social Council of the UN, in which rape prevalence is estimated at between 250,000 and 500,000, is remarkably often quoted. These numbers have probably been copied so many times, simply because they were the first available, even though it was unclear with what procedure they were arrived at. Our estimation procedure employs other estimations that are themselves uncertain, namely, the number of female Tutsis before the genocide in 1994, the number of female Tutsi deaths, the number of moderate female Hutus, and the pregnancy risk after rape. Precisely because our estimates are based on several accumulating assumptions, we scaled our estimations down, to be sure not to overestimate. For that matter, the real number, which will never be known, may be assumed to lie above our lower bound of 354,440 victims. It is important to notice that our calculation in this manner shows that the actual lower bound is almost certainly substantially higher than 250,000, the low end of the Degni-Ségui estimate—which is in fact often employed as a midpoint estimate.

The purpose of this research was not to discover that rape was widespread during the Rwandan genocide. Rather, it meant to produce, as best as possible given the extreme data paucity, an estimate of the prevalence of victimization of an offence that is known to occur often in the course of a period of collective violence or genocide. For studying the crime of genocide, such baseline data are needed just as they are needed for studying other types of offending. We believe our estimate improves on prevailing estimates as it is transparent, and based on modest assumptions. Obviously, our estimate hinges on the most widely used mortality estimate: 800,000. If one would employ a different mortality estimate, our estimates would change accordingly.

Next, our study aimed to assess the relative prevalence of rape victimization during the Rwandan genocide comparing it to pregenocide rape prevalence rates and comparing it to the global hot spot of rape incidence. Though one might expect rape incidence to be increased in times of genocide compared to tranquil times, we showed, using a low-end estimate that is 220 times higher than before the start of the genocide, how rape prevalence during the genocide was immensely increased at least. In addition, we showed how rape prevalence in genocidal Rwanda was at least, again because we are working with lower bounds, 25 to 84 times higher than in South Africa that reportedly has wartime-like rape incidence.

Our methodological exercises showed that, though in principle feasible, back calculation of rape victimization prevalence from the number of rape-incurred births and pregnancies produced methodological complications for the Rwandan case. First and foremost, too many women were killed after being raped for this to be a relevant method. Second, it must be suspected that estimates of the number of live births were underestimates. Third, data on the percentage of women who had an abortion varied greatly across various nonrepresentative surveys. The second complication is in all likelihood a direct consequence of the fact that rape carries a severe social stigma in Rwandan society.

Estimating rape victimization from combined survey findings, mortality, and census data, we again found that the available data led to incongruities in estimation. Part of these incongruities can for sure be attributed to the fact that first, mortality itself during the Rwandan genocide has not been established precisely, and second, census data themselves cannot be assumed to be unbiased.

Our rape prevalence estimation thus shows that quantitative assessment of victimization in international crimes and gross human rights violations is indeed no simple job. The dearth of data is daunting, and this is probably in general the case for less developed countries like Rwanda or countries where conflict has been smoldering for a while before erupting violently. This implies that due to the lack of precise data, estimation in the statistical sense is not possible in such countries or for such conflicts. In such cases, commonsense extrapolations and conservative estimates may simply be the maximum achievable. These run the risk of "leading a life of their own" and underscaling the seriousness of what happened. Even so, our common sense and conservative estimates showed that rape victimization in Rwanda must at the minimum have been substantially higher than the 250,000 that is often quoted. Our estimates also showed that for women the risk to be raped was about as high as the risk to be killed and that rape incidence levels were very much elevated above ordinary levels and also very much higher than that currently prevails in countries such as South Africa where rape is said to be endemic or of war-like proportion. Thus, all in all,

even with extreme data paucity, estimates can be arrived at and modest conclusions can be drawn. The procedures we employed ensured that we can be confident that our estimates present a reasonable lower bound of rape victimization. As such, they underscore the epidemic nature of sexual violence during genocide and the need for Rwandan society and its victims to deal with this trauma as well. As our estimates are transparent, they can be adjusted (or challenged) by adjusting the assumptions.

The question remains whether better data could be obtained on rape victimization. Though some victim surveys have been held in Rwanda after the 1994 genocide, the stigma that rape carries in Rwandan society combined with the high mortality makes victim surveys in all likelihood an unsuitable instrument here. As far as we know, no self-report surveys for rape have been held in Rwanda as yet. With an estimated 200,000 (Straus, 2004) to 800,000 (Haveman, 2008) surviving perpetrators and given present-day conditions in Rwanda, it appears as if for assessing the incidence of rape and other sexual offences, such a survey, perhaps in a tailored format among particular groups, might be worth considering.

Note

1. Stalin allegedly remarked: “One death is a tragedy, while a million are a statistic” (Alvarez, 2001, p. 18) while Adolf Eichmann was quoted to say virtually the same: “One hundred dead are a catastrophe; one million dead are nothing but a statistic” (Alvarez, 2001, p. 161).

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